

A SYNOPSIS OF THE GENUS *TETRAONYX* IN ARGENTINA  
(COLEOPTERA: MELOIDAE)

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*Abstract.*—Seventeen species of *Tetraonyx* Latreille are recorded from Argentina, including two new species: *T. lycoides* from Misiones and *T. sericeus* from Salta. A key to species on the basis of adults is provided. Previous locality and food plant records are cited and new ones summarized. The genus in Argentina is limited largely to northern and northwestern regions; no species is known from the Pampa and only two reach Patagonia. It is considered unlikely that any of the Argentine species is endemic. A distinction is drawn between species on the basis of the presence or absence of modifications of the foretarsus and antennal sensory setae of the adult male. The triungulin larva of *T. sericeus* is described and compared with that of the North American *T. fulvus* LeConte.

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*Tetraonyx* Latreille is a New World genus of Meloidae containing 98 nominal species, most of which are tropical (Selander, 1983). Its systematic position has been much disputed: Kaszab (1969) and others place the genus in the Meloinae; MacSwain (1956) assigns it to a separate subfamily; and Selander (1964, 1983) treats it as a nemognathine. Bionomic information is scanty, but so far as known, adults of the genus are flower feeders and larvae are specialized predators in the nests of wild bees.

Our recent discovery, in the course of field work in Salta, Argentina, of a new species of *Tetraonyx* has prompted us to prepare a key to the Argentine species and to summarize available data on their geographic distribution and food plants. In the process we have identified an additional new species as well as 15 previously described ones, bringing the total for Argentina to 17.

The fact that *Tetraonyx* is primarily a tropical genus is clearly reflected in the composition and distribution of the Argentine fauna. In Argentina it is limited largely to the tropical and subtropical northern region from Misiones to Salta and the arid basin and range country of the northwest. None of the species is recorded from the Pampa and only two from Patagonia (in Río Negro). Eleven are known to range into neighboring Brazil or, in the case of *T. brevis*, Brazil and Paraguay. Five have not yet been recorded outside Argentina, but one of these (*T. lycoides*), described herein from the frontier province of Misiones, will undoubtedly be found also in both Brazil and Paraguay, and the other four (*T. kirschi*, *T. pro-pinquus*, *T. lampyroides*, and *T. sericeus*) all occur as far north as Salta and very

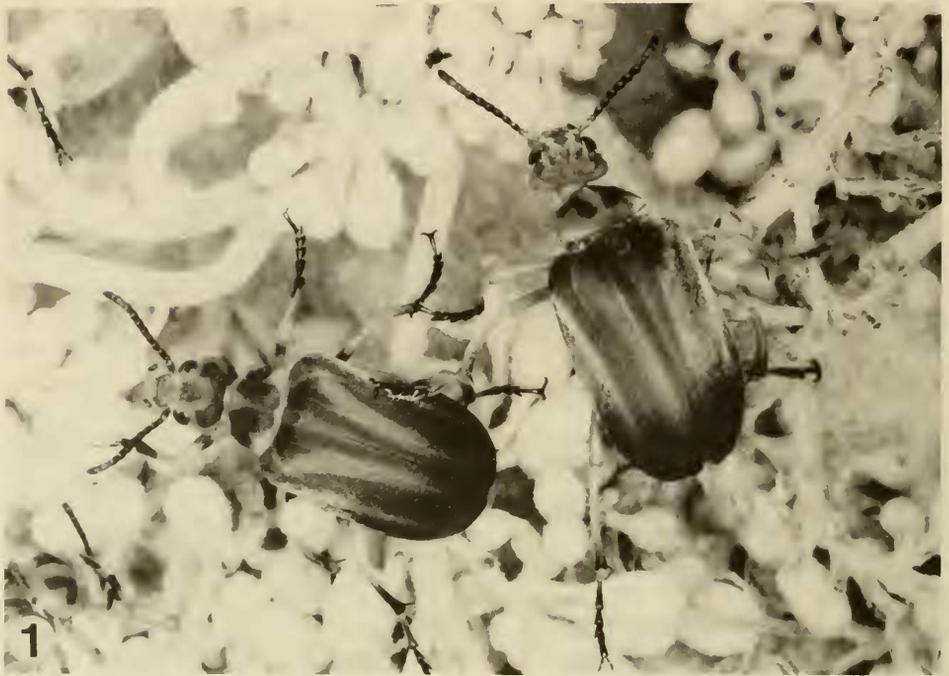


Fig. 1. *Tetraonyx brunnescens*, adults.

likely extend into Bolivia and/or Paraguay; *T. propinquus* has, in fact, been taken in Jujuy at the Bolivian border. The only Argentine species not represented in the northern part of the country is *T. septemguttatus*, which ranges extensively along the western Andean slopes of central Chile and enters Argentina from the west, in northern Patagonia.

In at least six of the species recorded from Argentina (*Tetraonyx albomarginatus*, *T. brevis*, *T. brunnescens*, *T. lamproides*, *T. sericeus*, and *T. sexguttatus*) the male foretarsus is not modified, and in both sexes the length of the sensory setae of the antenna (pale erect setae scattered among dark, recumbent clothing setae) is only a small fraction of the width of a segment. Four species (*T. clythroides*, *T. distincticollis*, *T. telephoroides*, and *T. innotaticeps*) are unknown to us from either sex and one (*T. lycoides*) is known only from the female. The remaining species agree in having the male foretarsus strongly expanded and more heavily padded ventrally than in the female and the sensory setae on the ventral surface of male antennal segments III-XI greatly elongated and forming a conspicuous, sparse fringe. On the middle antennal segments the length of the setae is at least  $\frac{3}{4}$  the width of a segment. In the female of these species the same setae are longer than usual; on the middle segments their length varies from  $\frac{1}{5}$  to nearly  $\frac{1}{2}$  the width of a segment. The foretarsal and antennal modifications of the male are associated with a distinctive pattern of courtship behavior (Selander, in preparation) and, as such, should be of considerable value in future systematic studies of the genus *Tetraonyx*.

Since it has been necessary to place four of the Argentine species in our key solely on the basis of their original descriptions, we have had to rely more heavily on color than we would have liked and to sacrifice precision in certain contrasts. Still, this course of action seemed preferable to the alternative of omitting these species from the key.

KEY TO ARGENTINE SPECIES OF *TETRAONYX* BASED ON ADULTS

1. Pronotum with sides concave at middle; body length usually more than 12 mm ..... 2
  - Pronotum with sides straight or convex at middle ..... 3
2. Largely yellow; pronotal disk usually with pair of large, angled black marks; elytron with or without black vittae ..... *brunnescens*
  - Black except for transverse series of yellow or orange elytral spots; venter and legs with blue sheen ..... *sexguttatus*
3. Elytral cuticle yellow, either immaculate or with black spots ..... 4
  - Not as above ..... 12
4. Head, pronotum, and elytron immaculate yellow ..... 5
  - Not as above ..... 6
5. Elytron densely setate, pubescent; pronotum less than  $1\frac{1}{2} \times$  as wide as long, not deeply impressed on disk laterally; femora entirely yellow, tibiae largely so ..... *sericeus*
  - Elytron sparsely setate, setae separated by distance nearly equal to their length; pronotum  $2 \times$  as wide as long, with deep impression in basolateral area of disk; femora black at apex, tibiae entirely black ..... *brevis* (part) and *innotaticeps*
6. Pronotum and legs entirely black; head black ..... *clythroides*
  - Pronotum and legs at least partly yellow; head black or not ..... 7
7. Elytron with black or brown spot covering basal  $\frac{1}{4}$  to  $\frac{1}{3}$  except for margins and another covering entire apical  $\frac{1}{3}$  to  $\frac{2}{5}$  ..... 8
  - Elytron with pair of black spots at base (rarely absent or partially fused) and another pair just behind middle (may be fused), not reaching apex ..... 9
8. Head entirely black; pronotum immaculate yellow, sides subparallel; elytral form normal; body length 10–12 mm ..... *bimaculatus*
  - Head with tempora and underside yellow; pronotum yellow with median brown spot, sides strongly convergent from base; elytron flared laterally in distal  $\frac{1}{2}$ ; body length 18 mm ..... *lycoides*
9. Postmedian pair of elytral spots arranged diagonally, with outer spot clearly more distal in position than mesal spot and, unless both spots are reduced to round dots, longer than it; elytron usually distinctly paler than head and pronotum; tibiae largely or entirely yellow ..... 10
  - Postmedian pair of elytral spots arranged transversely or nearly so, with outer spot rarely longer than mesal spot (and then only if spots are almost fully fused); elytron not paler than head and pronotum; tibiae largely yellow or entirely black ..... 11
10. Elytral spots reduced to round dots; basal spots set distad of level of

- apex of scutellum (rarely absent); postmedian pair of spots same size as basal pair, separated from each other by more than diameter of one spot; venter of body yellow . . . . . *kirschi*
- Elytral spots larger, oval; inner basal spot extending to basal margin, outer spot usually to humerus; postmedian pair of spots larger than basal pair, separated by no more than width of one spot; venter of body largely black . . . . . *maudhuyi*
11. Elytral setae nearly erect; inner hindtibial spur subequal in width to midtibial spurs; clothing setae of body black or piceous; tibiae and abdomen entirely black; head and pronotum yellow, each with median black spot . . . . . *septemguttatus*
- Elytral setae decumbent; inner hindtibial spur clearly wider than midtibial spurs; clothing setae of body colorless; tibiae largely yellow and apex of abdomen yellow or, if as above, head entirely black and pronotum largely so . . . . . *propinquus*
12. Elytral cuticle and setae entirely black . . . . . 13
- Cuticle of lateral margin of elytron yellow or clothed with pale (yellow or white) setae or both . . . . . 15
13. Pronotum with sides distinctly rounded, gradually convergent from base to apex; legs long, slender; black with yellow pronotum . . . . . *distincticollis*
- Pronotum with sides subparallel from base to near apex, then convergent; legs shorter, thicker; color as above or not . . . . . 14
14. Legs and venter of body black; pronotum abruptly constricted apically . . . . . *telephoroides*
- At least coxae and base of femora yellow; pronotum more gradually constricted apically . . . . . *nigriceps*
15. Elytron black, lacking discal vitta; legs entirely black or with femora yellow basally . . . . . *albomarginatus*
- Elytron black or brown, with discal vitta marked by pale setae and, often, yellow cuticle; if elytron black, legs entirely black . . . . . 16
16. Elytral setation sparser, with 10 or less setae in transect between sutural margin and discal vitta; elytron black, with pale margining and vitta narrow; male abdominal sternum VIII (last visible) with lateral lobes well defined, acute; apex of aedeagus not hooked . . . . . *lampyroides*
- Elytral setation denser, with more than 10 setae in transect between sutural margin and discal vitta; elytron as above or brown, with pale margining and vitta wide; male abdominal sternum VIII with lateral lobes broadly rounded; aedeagus with apical hook . . . . . *brevis* (part)

#### NOTES, RECORDS, AND DESCRIPTIONS

Collections other than our own are generally identified in this section by acronyms defined in the Acknowledgments, our collections by our initials. Values accompanying sample means, in parentheses, are estimated standard errors.

#### *Tetraonyx brunnescens* Haag-Rutenberg

Fig. 1

Recorded from Corrientes by Burmeister (1881) and from Tapia, Tucumán, by Pic (1915a) (as *T. baeri* Pic).

New records.—*Corrientes*: Santo Tomé, I-27 (AM) 2. *Formosa*: Formosa, XI-52, Peña (RBS) 1; Gran Guardia, Foerster (RBS) 1. *Jujuy*: (MLP) 1; El Naranjo, Rosario de la Frontera, I-44, Duret and Martínez (AM) 1. *Salta*: Sumaloa, 18-I-83, eating flowers of Sapindaceae, Martínez (AM, RBS) 22. *Santa Fé*: Barranquillas, 2-XI-54 (AM) 1.

The elytral vittae are reduced to indistinct basal spots in the specimens from Formosa and entirely lacking in those from Corrientes. In the latter specimens, which are assignable to Haag-Rutenberg's (1879) variety *minor*, described from "Irisanga," Brazil, the dark markings of the head and pronotum are nearly obsolete.

### *Tetraonyx sexguttatus* (Klug)

A widely distributed species in tropical America, not previously known from Argentina.

New record.—*Misiones*: Puerto Iguazú, XII-57, Martínez (AM) 1.

### *Tetraonyx clythroides* Haag-Rutenberg

Both Bruch (1914) and Denier (1935b) indicated that this species occurs in Argentina.

### *Tetraonyx bimaculatus* (Klug)

Reported from Misiones by Bruch (1914).

### *Tetraonyx lycoides* Selander and Martínez, NEW SPECIES

Adult female.—Basic color of head, pronotum, and elytron yellow. Head with middle of vertex and entire front except for small median area between antennae brown; antennae and last segment of maxillary and labial palpi brown. Pronotum with ill-defined discal brown spot,  $\frac{1}{3}$  as wide as pronotum, extending from near apical margin to basal  $\frac{1}{3}$ . Scutellum yellow. Elytron with large basal and apical fasciae; basal fascia deeply notched on posterior margin, well separated from sutural and lateral margins of elytron, extending to basal  $\frac{1}{4}$  of elytron; apical fascia with anterior margin jagged but not deeply notched, completely covering distal  $\frac{2}{5}$  of elytron. Hindwing yellow. Venter brown except prosternum, mesepimeron, and lateral and median areas of abdominal sternum VI yellow. Legs brown with trochanters and basal  $\frac{1}{2}$  of femora yellow; some yellow mottling apically on coxae; midtibia lightened to near yellow on posterior surface except at base and apex. Head, pronotum, and scutellum conspicuously clothed with long, nearly erect setae; setae forming conspicuous fringe on occiput and margins of pronotum; elytral cuticle nearly obscured by dense clothing of decumbent setae; venter with setae fine, decumbent, rather inconspicuous, most of those on abdomen very short. Setae throughout tending to match color of underlying cuticle (colorless on yellow areas, brown on brown areas), except that brown setae often encroach on yellow areas; on head, pronotum, and elytra in particular this softens edges of brown marks; setae on dorsum about  $\frac{2}{5}$  as long as antennal segment II. Length: 18 mm.

Head with sides divergent above eyes, rounding smoothly into tempora; occiput evenly convex; length (to base of labrum) equal to width at tempora, which is in turn equal to width across eyes; interocular distance (ID) .56 width of head across

eyes; coronal suture limited to occiput; frontal area flat with fine, smooth, weakly elevated ridge; cuticle moderately shiny, finely, densely, evenly punctate. Antenna reaching 2 segments beyond base of pronotum, not clavate; segments well differentiated, expanded from base to apex, with result that antenna is almost serrate; length of segment I .64 ID,  $1\frac{1}{10}\times$  width; II  $\frac{3}{10}$  as long as I, as wide as long; III about  $\frac{3}{5}$  as long as I,  $\frac{3}{5}$  as wide as long; III-X becoming progressively slightly longer; X  $1\frac{3}{10}\times$  as long as III; III-VII becoming progressively slightly wider, VII-XI progressively narrower; VII nearly  $1\frac{2}{5}\times$  as wide as III; XI subequal in length to I,  $2\frac{3}{4}\times$  as long as wide, as wide as III, abruptly narrow in distal  $\frac{1}{3}$ , which appears superficially to be a separate segment. Eye prominent; width .76 length, .61 ID; inner margin facing antennal insertion deeply, broadly excised. Clypeus and labrum more sparsely punctate than front and with longer setae; labrum deeply emarginate medianly. Last segment of maxillary palpus widest at middle; length  $\frac{1}{3}$  ID,  $2\times$  width; apex subtruncate; sensory area represented by inconspicuous, oblique impression. Last segment of labial palpus small, bud-shaped, compressed, slightly longer than wide, truncate at apex.

Pronotum strongly transverse, .54 as long as wide,  $1.55\times$  as wide as head at tempora, roughly trapezoidal in form; sides evenly and rather strongly convergent from base to near apex, then abruptly convergent and nearly transverse; hind angles well defined, prominent; median  $\frac{1}{3}$  of pronotum except at base strongly elevated, evenly convex; lateral  $\frac{1}{3}$  on each side deeply, evenly impressed, so that pronotum is "winged" laterally; base flat medianly, with margin evenly rounded in median  $\frac{2}{3}$ ; cuticle as on vertex. Scutellum large, triangular, broadly rounded at apex, densely punctate and setate, with deep, glabrous median sulcus.

Elytron weakly flared laterad in distal  $\frac{1}{2}$ , obliquely truncate at apex, with well defined corner at sutural margin; width about  $\frac{1}{4}$  length at level of apex of scutellum,  $\frac{1}{3}$  length at distal  $\frac{1}{3}$ ; surface finely, densely rugose-punctate; costulae narrow, very weakly elevated, visible only in median yellow area. Venter shiny, smooth, very finely punctate, rather densely so on metasternum, sparsely so on abdominal sterna except III. Abdomen with pygidium shallowly excised medianly; sternum VII shallowly, evenly emarginate; VIII flattened distally, shallowly, roundly emarginate; apical margins of pygidium and sternum VIII fringed with long setae.

Legs slender, relatively short. Mid- and hindtibia distinctly bowed. Fore- and midtibial spurs long, slender, spiniform; hindtibial spurs similar to each other in size and form, thicker than others, parallel-sided, very obliquely truncate to base, rounded at apices. Tarsi with segments II-IV on fore- and midleg and II-III on hindleg bilobed; pads (ventral pale setae) well developed, dense on all segments except segment I of mid- and hindtarsus, which is setate but lacks differentiated pad. Foretarsus (measured on dorsal midline) with segment I  $\frac{1}{10}$  as long as foretibia, little more than  $\frac{1}{2}$  as wide as long; II and III about  $\frac{1}{2}$ , IV  $\frac{2}{5}$ , and V  $1\frac{2}{5}\times$  as long as I.

Male.—Unknown.

Type material.—Holotype female from Campo Grande, Misiones, Argentina, XII-57, Walz, in Martínez collection.

Remarks.—This species, like *Tetraonyx superbus* Pic (1915a), described from "Mineiro," Brazil, is presumably a lycid mimic. On the basis of Pic's description, the two species have essentially the same color pattern. In Pic's species, however, the pronotal spot is "narrow," the scutellum black, and the middle of the tibiae

yellow, whereas in *T. lycoides* the dark pronotal spot is broad, the scutellum yellow, and the tibiae brown except for the middle area of the posterior surface of the midtibia. Pic referred to the dark color of his species as black. In the type specimen of *T. lycoides* it varies from medium to light brown. This specimen, collected 27 years ago, is perhaps faded, but it seems unlikely that the brown areas were ever dark enough to be characterized as black.

Typically, Pic mentioned few structural characters in describing *T. superbus*. The pronotum was characterized as subtransverse, with the sides almost straight, and the elytron as rather elongate and costate. In *T. lycoides* the pronotum is strongly transverse and the elytral costulae are hardly elevated.

### ***Tetraonyx kirschi* Haag-Rutenberg**

Fig. 2

Recorded previously from Catamarca, Córdoba (El Sauce), Mendoza, San Luis (Carolina), and Tucumán (Haag-Rutenberg, 1879; Burmeister, 1881; Bruch, 1914; Viana and Williner, 1972, 1973).

New records.—*Mendoza*: Mendoza, 29-I-70, Peña (RBS) 5; Uspallata, 24-I-49, Aczel (IML) 1. *Neuquén*: Zapala, 17-XII-30, Kohler (MLP) 4. *Río Negro*: Río Colorado, (MLP) 1, XII-30, Reed (CAS) 1. *Salta*: Cafayate, 5-I-56, Peña (RBS) 17. *San Luis*: 45 km NNE Beazley, 4-III-83, eating flowerheads of *Baccharis*, Selander and Peña (RBS) 10.

The pale yellow color of the adult closely matches the color of *Baccharis* flowerheads on which the sample from San Luis was taken. The basal elytral spots are absent in the specimen in the MLP (Denier collection) from Río Negro.

### ***Tetraonyx maudhuyi* Pic**

Bosq (1943) recorded this species (as *T. lineolus* var. *maudhuyi*) from flowers of a wild Liliaceae at Pindapoy, Misiones. At least part of his material, collected October 1935, is in the Denier collection, MLP, where it is determined both as *T. maudhuyi* (five specimens) and as *T. pallidus* Haag-Rutenberg (eight specimens). As Denier's indecision suggests, *T. maudhuyi* is similar to *T. pallidus* Haag-Rutenberg and may prove to be a junior synonym.

New records.—*Buenos Aires*: Tandil, XI-51, Andrae (AM) 3. *Córdoba*: Arguello, 300 m, XI-58, Walz (RBS) 23. *Formosa*: Formosa, 1-X-52, Peña (RBS) 6; Gran Guardia, XI-57, Walz (RBS) 34.

### ***Tetraonyx septemguttatus* Curtis**

This species has not been recorded previously from Argentina.

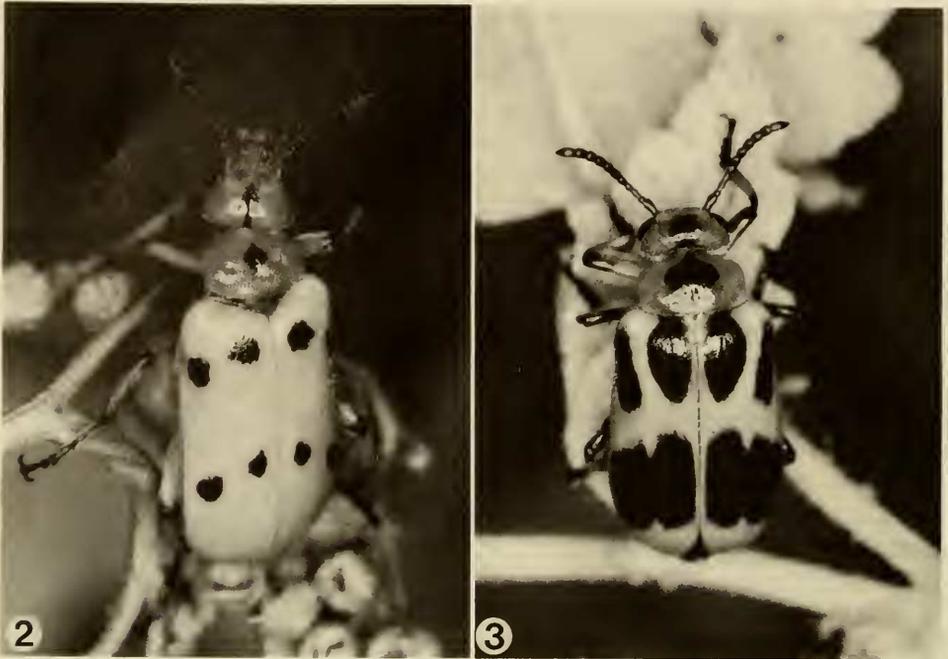
New records.—*Río Negro*: El Bolsón, XI-55, Walz (RBS) 20; III-56, 18/25-XI-56, and II-57, Kovacs (LACM) 10. *Province unknown*: NW Patagonia, XII-19, Box (BM) 1.

The Argentine specimens are small but otherwise agree well with material from Chile.

### ***Tetraonyx propinquus* Burmeister**

Fig. 3

A common and widely distributed species, recorded in the literature from Catamarca (Valle de Santa María), Córdoba (Alta Gracia, El Sauce), Mendoza, San Luis (Carolina), Santiago del Estero, and Tucumán (Burmeister, 1881; Pic,



Figs. 2-3. Adults. 2, *Tetraonyx kirschi*. 3, *T. propinquus*, heavily marked individual.

1915b (as *T. argentinus* Pic), 1916 (as *T. argentinus* var. *disjunctus* Pic); Bosq, 1943; Viana and Williner, 1973). Found destroying flowers of German *Iris* by Bosq; collected on flowers of Cactaceae by Viana and Williner.

New records.—*Catamarca*: El Rodeo, Santa Rosa, II-42, Schaefer (AM) 1; Punta de Balasto, 2200 m, 17-I-83, Selander and Peña (RBS) 4; 4 km N Santa María, 1900 m, 19-I-83, Selander and Peña (RBS) 36; Sorohuasi, I-25, Weiser (IML) 1. *Córdoba*: Dpto. Punilla, I-81, Yarh'nez (AM) 1; Villa Nueva, 6-I-38 (IML) 1. *Jujuy*: La Quiaca, 3442 m, 17-II-51, Ross and Michelbacher (CAS) 2. *Mendoza*: between Beazley (San Luis) and San Rafael, 4-III-83, Selander and Peña (RBS) 3. *Salta*: Cerro San Bernardo, Capital, II-46, Martínez (AM) 2. *Santa Fé*: Villa Ana, I-46, Hayward and Willink (IML) 4. *Santiago del Estero*: 33 km S Santiago del Estero, 20-XII-71, flowers of *Solanum elaeagnifolium*, Selander and Mathieu (RBS) 3. *Tucumán*: Amaicha del Valle, 2000 m, 18-XII-64 to 9-I-65, flowers of *Opuntia*, *Solanum elaeagnifolium*, and Convolvulaceae, Selander and Storch (RBS) 75; Siambón, III-45, Olea (IML) 2; Tafi del Valle, XII-45, Hayward (IML) 3.

In the specimens from Jujuy and Salta the legs are entirely black and the head and pronotum largely so. These specimens resemble the Bolivian *T. chevrolati* Haag-Rutenberg (1879), of which *T. propinquus* is perhaps a geographic race.

#### *Tetraonyx distincticollis* Pic

Recorded by Denier (1935a, 1935b) from Argentina, without mention of a specific locality. Otherwise known only from the state of Santa Catarina, Brazil. We have placed the species in our key on the basis of Pic (1916) and Kaszab's (1959) descriptions.

***Tetraonyx telephoroides* Haag-Rutenberg**

Listed for Argentina by Denier (1935b).

***Tetraonyx nigriceps* Haag-Rutenberg**

Reported eating flowers of *Ipomoea* at Eldorado, Misiones, by Bosq (1943). Twelve of Bosq's specimens, collected May 1936, are in the Denier collection, MLP. A single specimen, presumably also from Bosq's series, is in the CAS.

***Tetraonyx albomarginatus* Haag-Rutenberg**

We have tentatively identified three specimens from Misiones and one from Formosa as representing this species, described originally (Haag-Rutenberg, 1879) from "Salto Grande," Brazil.

New records.—*Formosa*: Parque Nacional Laguna Blanca, 25 km W Clorinda, I-50, Martínez (AM) 1. *Misiones*: Loreto, II-56 (AM) 3.

This is a largely black species with an immaculate yellow prothorax. The lateral margin of the elytron is finely yellow from the base to at least the distal  $\frac{2}{5}$ . The scutellum is yellow basally in one specimen. The femora are bright yellow in the basal  $\frac{1}{2}$  to  $\frac{2}{3}$  in three of the specimens and an obscure yellow at the very base in one. None of the specimens exhibits the metallic elytral luster noted by Haag-Rutenberg in some of his material. The pronotum, described by Haag-Rutenberg as more than  $2\times$  as wide as long, ranges from 1.61 to  $1.85\times$  as wide as long. The elytra, described as not much wider than the pronotum, are (at the level of the apex of the scutellum)  $1.30\times (.004)$  ( $N = 4$ ) as wide as the pronotum. Otherwise, our material agrees with the structural characteristics given by Haag-Rutenberg.

***Tetraonyx lampyroides* Burmeister**

Described originally from Tucumán (Burmeister, 1881) and reported subsequently from Iliar, La Rioja (Viana and Williner, 1974).

New records.—*Catamarca*: 5 km N Santa María, 1900 m, Catamarca, 9-II-83, *Sphaeralcea*, Selander and Peña (RBS) 1. *La Rioja*: Patquía, I-33, Hayward (IML, MLP) 2. *Salta*: Cafayate, II-62, Hayward, and II-50 (IML) 6. *Santiago del Estero*: Campo Gallo, III-43, Prosen (AM) 1; Ocaño (MLP) 1; Río Salado (BR, MLP) 6. *Tucumán*: Dpto. Burreyacu, III-46, Araoz (AM) 4; Río Mixta, 45 km SSE Tucumán, 6/8-XII-64, *Sphaeralcea bonariensis*, Selander and Storch (RBS) 15; Tucumán, IV-49, Monros and Goldbach (IML) 1.

This species is similar to *T. brevis* (Klug) (= *T. vittatus* Haag-Rutenberg). In the series from Río Mixta, Tucumán, the head varies from entirely black to entirely yellow. The elytron is consistently black with a fine light area beneath the discal vitta; the venter and legs are black. The elytral setae are sparser than in *T. brevis*. The eye is usually not so prominent as in that species, but the difference is subtle and not particularly useful for identification. In the males there are consistent interspecific differences in the form of abdominal sternum VIII and the aedeagus (Figs. 6–9).

***Tetraonyx brevis* (Klug)**

Recorded from Argentina without a specific locality by Denier (1940). In addition to one specimen from Formosa, Argentina, we have examined good series of specimens from Bolivia, Brazil, and Paraguay.

New record.—*Formosa*: Parque Nacional Laguna Blanca, 25 km W Clorinda, I-50, Martínez (AM) 1.

The color pattern is highly variable. The head varies from black to largely yellow. The pronotum is commonly immaculate yellow but may have a median black spot. The elytron varies from black to (rarely) immaculate yellow. The venter of the body may be entirely black, yellow mottled with black or brown, or (rarely) entirely yellow. The basal  $\frac{3}{4}$  of the femora is usually yellow, but occasional specimens have entirely black legs. The Argentine specimen is a lightly marked one. See *T. lampyroides*, above.

### *Tetraonyx innotaticeps* Pic

Listed for Argentina by Denier (1940). Pic's (1915a) superficial description of the type specimen (from Brazil) provides no basis for distinguishing adults of this species from lightly marked individuals of *T. brevis*.

### *Tetraonyx sericeus* Selander and Martínez, NEW SPECIES

Figs. 4–5, 10–13

Adult.—Orange yellow; elytra paler than rest, nearly straw yellow; venter often suffused with light brown, especially on thorax; antennal segments II–XI, very base of tibiae, and all tarsal segments dark brown; last two segments of maxillary palpus and last segment of labial palpus light brown. Head, pronotum, and venter moderately densely, conspicuously clothed with colorless, sericeous setae; elytron pubescent, setae twice as dense as elsewhere, producing a distinct satiny sheen; setae on dorsum of body slightly shorter, on the average, than those on venter, about  $\frac{2}{3}$  as long as antennal segment II. Length: 5–9 mm.

Head quadrate above eyes, with well developed tempora; length (to base of labrum) .96 (.011) (N = 10 for this and means that follow) greatest width above eyes, which is .94 (.007) width across eyes; interocular distance (ID) .65 (.008) width of head across eyes; coronal suture distinct, finely impressed, brown, extending to level of dorsal margin of eye; cuticle shiny, densely, rather evenly punctate, punctures large, separated by much less than diameter of single puncture; clothing setae mostly directed anteriorly, longer on sides and anterior part of front than on vertex. Antenna reaching base of pronotum, not clavate; segments bead-like, well differentiated; sensory setae not elongated; length of segment I .40 (.009) ID,  $2 \times$  width; II about  $\frac{2}{5}$  as long as I,  $\frac{6}{7}$  as wide as long; III–VII equal in length,  $1\frac{3}{10} \times$  as long as II, becoming progressively slightly wider; III  $\frac{2}{3}$  as wide as long; VII more than  $\frac{4}{5}$  as wide as long; VIII–X slightly shorter and narrower than VII; XI about  $\frac{4}{5}$  as long as I, twice as long as wide, as wide as X. Eye prominent; width .82 (.009) length, .49 (.072) ID; inner margin facing antennal insertion straight, not excised. Clypeus and labrum with punctures and setae as on front. Labrum shallowly emarginate medianly. Last segment of maxillary palpus slightly widened distally; length .29 (.005) ID,  $2 \times$  width; apex rounded; large, oblique sensory area dorsolaterally. Last segment of labial palpus small, bud-shaped,  $\frac{6}{7}$  as wide as long.

Pronotum subquadrate, .69 (.009) as long as wide,  $1.07 (.011) \times$  as wide as head above eyes; sides subparallel and weakly rounded for basal  $\frac{1}{3}$ , then abruptly convergent to apex; disk rather evenly convex, with fine median sulcus just indicated at center and deep impression in basal  $\frac{2}{3}$ , extending laterad  $\frac{1}{2}$  distance



Figs. 4-5. *Tetraonyx sericeus*, adults. 4, Alert posture. 5, "Sleeping" posture.

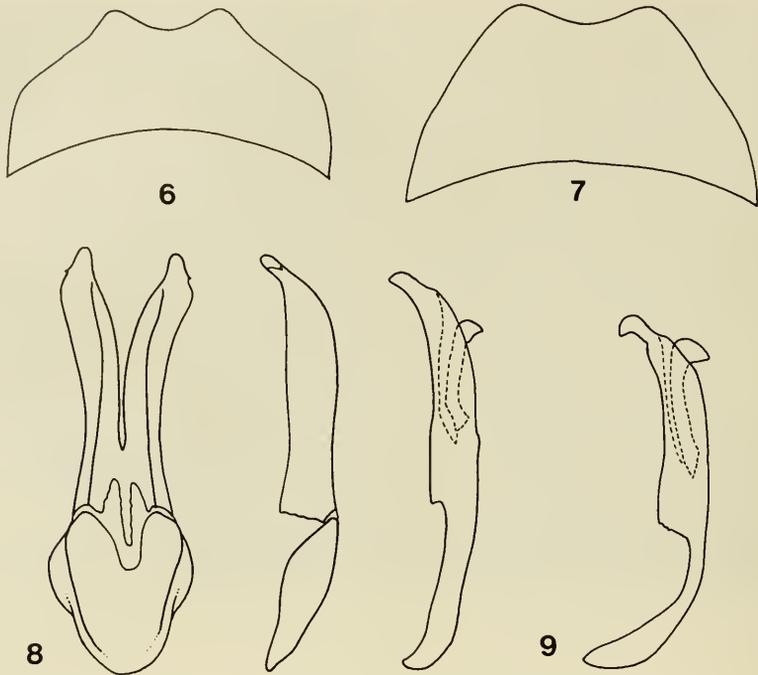
to lateral margin of disk; basal margin strongly recurved behind impression; cuticle of disk as on vertex; lateral ridge separating disk from deflexed portion well developed in basal  $\frac{2}{3}$ , the deflexed portion in that region deeply concave, impunctate, glabrous. Scutellum large, triangular, rounded at apex, densely setate.

Elytron parallel-sided, not expanded distally; width at level of apex of scutellum about  $\frac{1}{2}$  length; cuticle dull, densely scabropunctate. Venter microgranulose, finely punctate. Abdomen with pygidium truncate.

Legs relatively short. Midtibia moderately bowed. Fore- and midtibial spurs long, moderately heavy, foretibial pair widely separated from each other by deep ventral emargination of tibial apex; hindtibial spurs similar to each other in size and form, much thicker than others, sticklike, very obliquely truncate; apices not acute. Tarsi with segments cylindrical; penultimate segment not bilobed; pads (ventral pale setae) absent on last segment, present but not dense on other segments. Foretarsus (measured on dorsal midline) with segment I  $\frac{1}{2}$  as long as foretibia,  $\frac{2}{5}$  as wide as long; II about  $\frac{7}{10}$ , III  $\frac{2}{3}$ , IV  $\frac{1}{2}$ , and V  $1\frac{2}{3}$  × as long as I.

Male.—Abdominal sternum VII broadly emarginate to depth of  $\frac{1}{4}$  its length; sternum VIII semicircularly emarginate to depth of  $\frac{1}{4}$  its length, median area and lateral lobes with scattered hooked setae that are much heavier than rest; tergum IX consisting of pair of large, elongate sclerites in lateral position; sternum IX as in Fig. 13. Genitalia with gonostylus deeply notched at apical  $\frac{1}{2}$ , apical portion thus defined modified ventrally to form elongate, concave pad; aedeagus strongly curved and cupped basally, with single, heavy, barely recurved ventral hook at apex; dorsal hook heavy, triangular.

Female.—Abdominal sterna VII and VIII entire. Gonostylus elongate, rodlike, more than 7 × as long as wide.

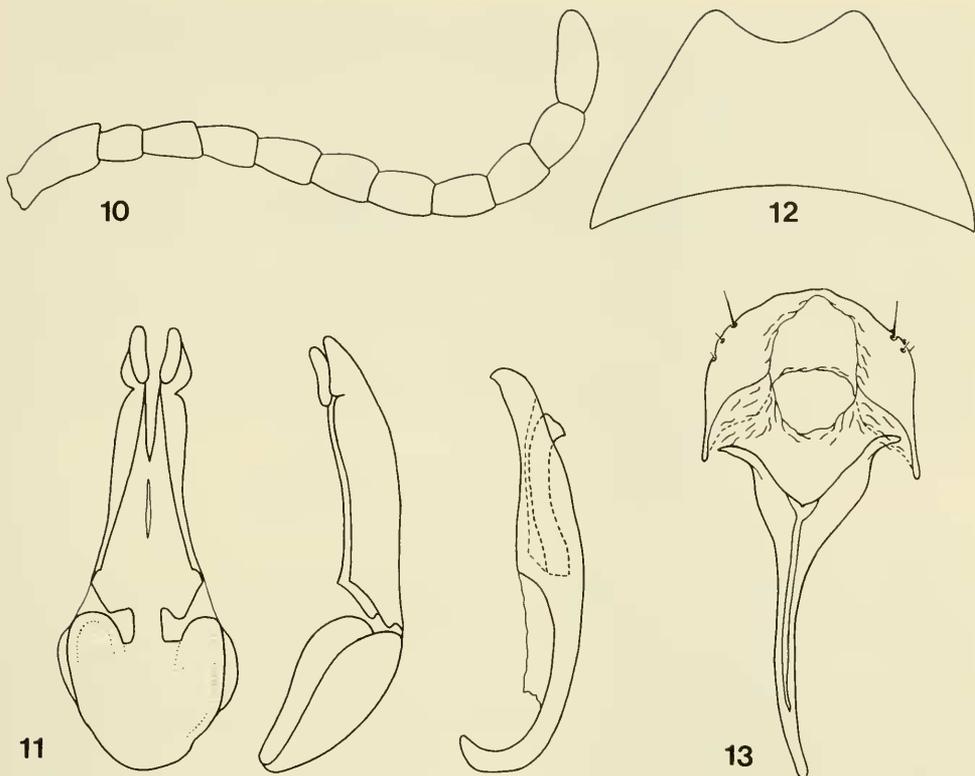


Figs. 6-9. Male sexual characters. 6, *Tetraonyx lampyroides*, abdominal sternum VIII. 7, *T. brevis* (Brazil), same. 8, *T. lampyroides*, genitalia (ventral and lateral views of gonoforceps, lateral view of aedeagus). 9, *T. brevis* (Brazil), aedeagus (lateral view).

Type material.—Holotype male and 23 paratypes (7 males, 16 females) from Cabra Corral, 20 km E Colonel Moldes, Salta, Argentina, 27 January 1983 (2 paratypes 28 January 1983), *Abutilon* sp., A. Martínez and R. B. Selander. Three additional paratypes (1 male, 2 females), same data as above but collected by M. J. Viana. Holotype in R. B. Selander collection. Paratypes in the Field Museum of Natural History, Chicago; Museo Argentino de Ciencia Natural "Bernardino Rivadavia," Buenos Aires; Museo de La Plata, La Plata; and the Martínez, Selander, and Viana collections.

Remarks.—The thoracic venter is entirely orange yellow in 7 specimens, suffused with light brown on the mes- and metepisternum in 10, and entirely light brown in 6. The abdominal venter is light brown in 3 of the specimens of the second type and in all 6 of the third type. There is no indication that the variation is related to sex. Sexual dimorphism in structural characters seems to be limited to the form of the last two visible sterna of the abdomen and the genitalia themselves.

In Haag-Rutenberg's (1879) key this species runs to division C ("Thorace lateraliter numquam exciso . . . parapleuris plerumque distincte separatis") and thence, on the basis of color, to *Tetraonyx nigricornis* (Klug, 1825) (= *T. nigricornis* Haag-Rutenberg, 1879), recorded from Brazil and Colombia by Haag-Rutenberg and (as var. *atripes* Pic) from Peru by Pic (1916). The two species are immediately distinguished from all other members of the genus assignable to



Figs. 10–13. *Tetraonyx sericeus*, male. 10, Antenna. 11, Genitalia (ventral and lateral views of gonoforceps, lateral view of aedeagus). 12, Abdominal sternum VIII. 13, Abdominal segment IX, ventral view.

division C by the absence of black or brown markings on both the pronotum and elytron. Yet on the basis of Haag-Rutenberg's (1879) description and a female specimen in the Denier collection, MLP, *T. nigricornis* is quite distinct from *T. sericea* and, in our opinion, probably not a close relative. In *T. nigricornis* the color is more nearly orange; there is a small dark spot on the front of the head; the femora and tibiae are tipped with brown; the pronotal disk has an impression on each side and sharply defined posterior angles; the elytron is smooth, shiny, finely punctate, and clothed with relatively short, decumbent setae; and the outer hindtibial spur is wider than the inner one. (We have not seen the male of the species.) Among the Argentine species, *T. sericeus* is anatomically most similar to *T. lampyroides* and *T. brevis*.

Bionomics. — The type locality is in a region of arid scrub vegetation bordering the Cabra Corral reservoir in the center of the province of Salta. Here all our adult material was taken on an apparently undescribed species of *Abutilon* (Malvaceae) characterized by cordate, finely dentate leaves and small flowers of almost precisely the same orange yellow color as the beetles. A similar species of *Abutilon*, distinguishable by its more coarsely dentate leaves, occurs commonly with the food plant but is evidently not utilized by the beetles. Most of the beetles were

feeding singly on flowers and flower buds; a few were resting on bracts under buds. Those that were active often took to flight rapidly when approached. This behavior, together with the small size and cryptic coloration of the beetles, made it difficult to collect them.

In captivity the beetles ate all parts of the flowers of the food plant, including pollen. At night and on cool, overcast days they adopted a characteristic "sleeping" posture, with the head lowered and the antennae directed to the sides (Fig. 5). Females plastered their eggs, which are quite sticky, in compact, flat masses on the underside of leaves of the food plant (two cases) or on gray paper used as a floor covering in their cages (nine cases). The eggs stand upright on the substrate. The adhesive is not water soluble. The number of eggs per mass in 11 masses ranged from 61 to 433, with a mean of 274.5. (For nine masses obtained separately, the mean was 266.0 (41.26).) Incubation time at ambient temperature, determined for six egg masses, averaged 11.7 (.41) days.

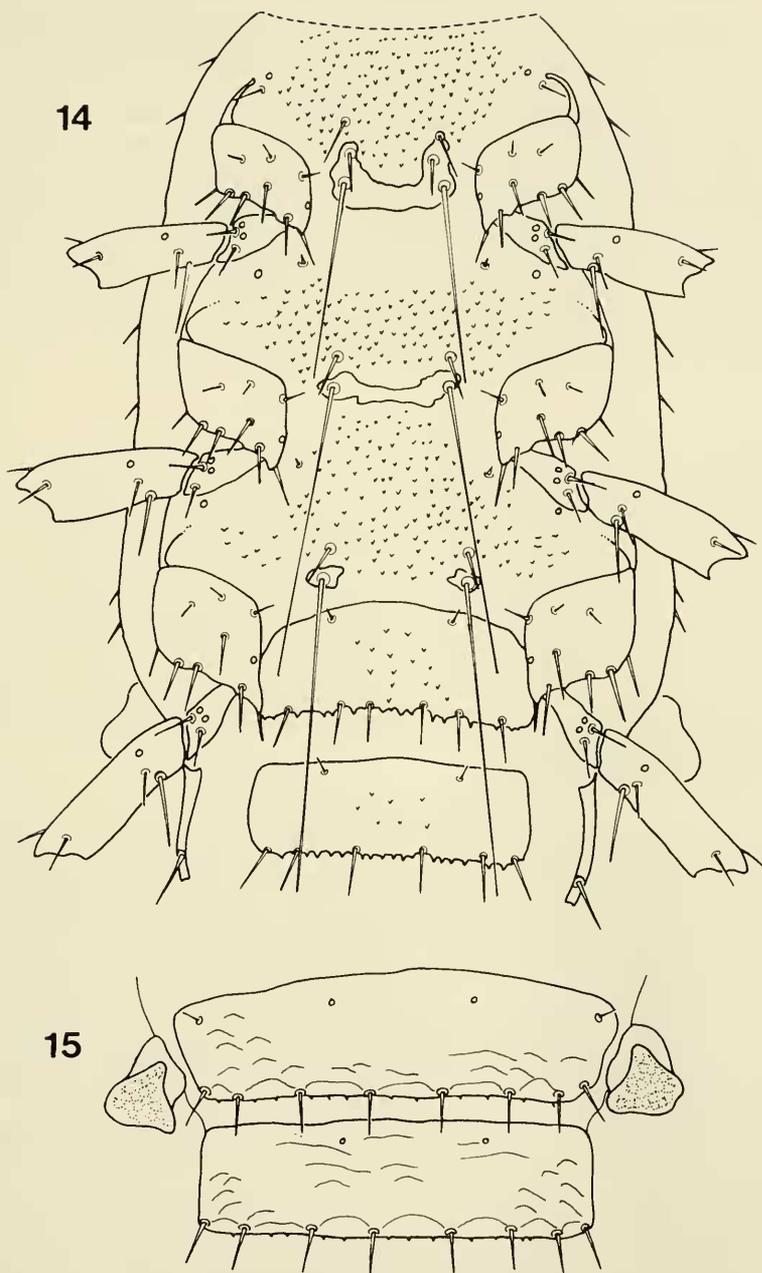
### Triungulin Larva of *Tetraonyx sericeus*

Figs. 14-15

Differs from the larva of *T. fulvus* LeConte as follows:

Color much darker brown. Head with median phragma more strongly protuberant posteriorly. Maxillary palpus with segment III slightly more than  $4 \times$  length of II ( $5 \times$  in *T. fulvus*). Thoracic venter with cuticular reticulations more strongly developed, drawn into conspicuous spines over most of median area of all three segments (few such spines also on abdominal sternites I-III) (spines lacking in *T. fulvus*); minute cuticular papillae confined largely to posterior and lateral areas (densely distributed over median area in *T. fulvus*); anteriormost pair of median setae on prothorax more posteriad in position, arising at level of anterior margin of coxa (at level of anterior end of pleurite in *T. fulvus*); major median setae on pro- and mesothorax arising from a common, transverse sclerite (small, separate sclerites in *T. fulvus*); major median setae on metathorax as long as those on mesothorax, each arising from separate, small sclerite (setae much shorter and sclerites absent in *T. fulvus*). Legs with coxae transverse,  $1\frac{1}{3} \times$  wider than long ( $\frac{9}{10}$  as wide as long in *T. fulvus*); femur with subbasal posterior seta larger than others,  $\frac{1}{3}$  length of femur ( $\frac{1}{5}$  in *T. fulvus*). Abdominal tergite I with 8 posterior marginal setae, II-V with 12 (I with 6, II-IV with 14, V with 12 in *T. fulvus*); bases of adjacent setae on tergites I-VII connected by arcuate line, producing a scalloped effect (less conspicuous in *T. fulvus*); sternites I-V each with 6 posterior marginal setae (I with only 4 setae in *T. fulvus*); posterior margin of sternites I-VIII strongly, coarsely dentate (as finely spinose as tergites in *T. fulvus*). Median pair of caudal seta  $3 \times$  as long as tergite V ( $2\frac{1}{2} \times$  in *T. fulvus*). Length .8 mm.

Remarks.—MacSwain (1956) characterized the genus *Tetraonyx* in the triungulin (first) larval instar almost entirely on the basis of the North American *T. fulvus*. In our comparison of *T. sericeus* and *T. fulvus* we have utilized larval material of the latter species from Chihuahua and Coahuila in Mexico and New Mexico in the United States. Several of the character states specified above for *T. fulvus* were not mentioned by MacSwain. In five characters we noted significant discrepancies between our material and MacSwain's description: (1) If one measures the sclerotized portions of antennal segments I and II, II is only slightly longer than I, not almost  $2 \times$  as long, as described by MacSwain. (2) Again mea-



Figs. 14-15. *Tetraonyx sericeus*, triungulin larva. 14, Ventral aspect of thorax and abdominal segments I-II. 15, Dorsal aspect of abdominal segments I-II.

suringsclerotized parts, we find that maxillary palpal segment III is  $2\frac{1}{2} \times$  as long as I and II combined, not "almost twice as long." (3) In none of several species of *Tetraonyx* that we have studied in the larval stage have we seen the "vestigial, wartlike" labial palpi reported by MacSwain and earlier figured for the larva of

*T. quadrimaculatus* (Fabricius) by Böving and Craighead (1931). (4) The tarsungulus is fully  $\frac{1}{2}$  as long as the tibia. (5) In MacSwain's drawing of the larva of *T. fulvus* the median pair of caudal setae are much too short.

*Tetraonyx sericeus* possesses a unique combination of states in the two characters used by MacSwain (1956) in his key to *T. quadrimaculatus* and *T. fulvus* and therefore will not run to either species. With respect to the length of the pair of major median setae on the metathorax, *T. sericeus* agrees with *T. quadrimaculatus*, but the latter species differs from both *T. sericeus* and *T. fulvus* in having the subbasal posterior seta of the femora greatly elongated (longer than the corresponding femur, according to MacSwain). Unfortunately, further comparison of these species is not possible at this time, since the condition of MacSwain's specimen of *T. quadrimaculatus* precluded detailed description.

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